



Confederated Tribes and Bands  
of the Yakama Indian Nation

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Established by the  
Treaty of June 9, 1855

September 17, 1996

Mr. John Wagoner, Manager  
Richland Operations Office  
Department of Energy  
P.O. Box 550 A7-50  
Richland, WA 99352

Subject: N-SPRINGS GROUND WATER BARRIER DEMONSTRATION PROJECT;  
DISAGREEMENT WITH--

Dear Mr. Wagoner:

BACKGROUND:

The groundwater at N-Springs near Hanford's N-Reactor is contaminated with strontium-90 and other contaminants as a result of discharges of reactor coolant in ditches at the Site. The level of strontium-90 is high and exceeds drinking water standards where it is entering the Columbia River at the N-Springs.

The DOE has sought an alternate technology to substitute for the on-going pump-and-treat remediation that is currently being used to remove strontium-90 (SR-90) from the groundwater and to keep excessive amounts from entering the river. One such attempt was a steel sheet-pile barrier wall to hold back groundwater at the springs. This idea failed in demonstration because of difficulty in installation of the sheet-pile about 30 feet from the river shore.

An alternative scheme has been devised to dig a trench for installation of an absorbent material for strontium to remove the contaminant from the groundwater as it passes through the material on its way to the river. This trench concept has been reviewed during the spring of this year as part of the Hanford Site Technology Development actions.

The Yakama Nation ER/WM Program participated in these reviews with the State of Washington and other Hanford stakeholders in a workshop in the spring. We identified various issues with the concept and concluded it was a faulted idea. The major issues are identified below.



## ISSUES:

1. The planning for installation of a full-scale barrier at N-Springs following a successful test does not include the removal of loaded and hazardous absorbent material periodically or finally after the groundwater no longer poses a problem.

(We recognize that the test plan includes provisions for removal of the material with the innocuous loading of Sr-90 expected after the short period of the test. The mundane results of the test will be to demonstrate that the trench can be dug and filled with an absorbent material. It is already known with good certainty that the absorbent will remove Sr-90 from the groundwater as it passes through. Long-term efficiency of the absorbent material will not be demonstrated.)

We find the planning for the full-scale application faulted in this regard, since the planned action would create a substantial hazard in the form of concentrated Sr-90 at a location dangerously close to the river and the accessible environment.

Consistent with our conclusion, the State of Washington indicated during the workshop in the spring that the accumulation of Sr-90 in the barrier material in the proposed trench along the river would only be acceptable as long as the concentration remained below a critical value connected with the hazard of Sr-90 in soils. At such time as the concentration exceeded the hazardous threshold, the barrier would have to be removed. This position effectively made use of the barrier for remediation of the groundwater over the long term impractical, given the necessity to frequently remove the barrier as it loaded up with Sr-90.

2. It became apparent during the workshop noted above that the river since February had begun to erode the bank at the intended location of the barrier wall. This observation is consistent with the prediction ER/WM Program made in comments to DOE earlier in the year when we warned that the proposed trench was along an unstable bank of the river, which could allow release of accumulated radioactive materials absorbed by the barrier if not removed.

The design of the demonstration project at the time of the workshop in June included a major rip-rap barrier made of large basalt boulders to protect the river bank from further erosion. This feature was removed from the current test design since DOE decided to risk loss of the test facility to future flooding given the short duration of the test.

It is not clear whether actual installation of an absorbent barrier as a full scale remediation method would include the major rip-rap barrier to protect the bank or not.

It is our conclusion that the design and demonstration of the rip-rap barrier needed to protect the bank of the river in the future over a period of time when the SR-90 would be hazardous is a more uncertain technical obstacle than the digging and filling of the trench itself. Leaving such a major construction and cost issue out of the test program is unfounded.

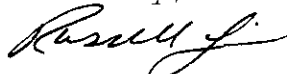
#### CONCLUSIONS:

1. Since the proposed testing does not address the entire costs of a potentially acceptable remediation scheme for the N-Springs problem and only provides a demonstration of trench construction and absorbent filling operations, we consider it unfounded and wasteful of limited R&D resources.

2. Since the technology development being proposed does not address the life-cycle management of the contaminants at the N-Reactor Site, including the Sr-90, subject to long-term requirements acceptable to the Yakama Nation, it should be canceled. One such requirement, which is not satisfactorily considered, is isolation of the hazardous contaminants from the accessible environment with reasonable assurance during the time they are hazardous.

Until an adequate design base, including appropriate requirements that address the long-term, is established with Yakama Nation concurrence with respect to issues that affect the Nation's culture, the planning of strategies for remediation and technology development are unlikely to be satisfactory.

Sincerely,



Russell Jim, Manager  
Environmental Restoration/Waste Management Program  
Yakama Indian Nation

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